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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/817,796	03/27/2001	Derek C.L. Cheung	14114ROUS01U	8355

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EXAMINER

BRINEY III, WALTER F

ART UNIT	PAPER NUMBER
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2644

DATE MAILED: 09/23/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/817,796

Applicant(s)

CHEUNG ET AL.

Examiner

Walter F Briney III

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 27 March 2001.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-15 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-15 is/are rejected.
- 7) ☒ Claim(s) 5-9 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 27 March 2001 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____

DETAILED ACTION

Claim Objections

Claims 5-9 objected to because of the following informalities:

- In line 1 of each claim, 5-9, the language "of claim of" should be "of claim."

Appropriate correction is required.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

1. **Claims 1, 3-6, and 8-14 are rejected under 35 U.S.C. 102(b) as being anticipated by Agarwal et al. (US Patent 5,590,176).**

Claim 1 is limited to *a management system for a telecommunications switch*.

Agarwal discloses an arrangement for local trunk hunting in a distributed switching system (Abstract). The structure of the switching system is depicted in figure 1. It includes a trunk unit (80) (i.e. *a first network interface card*) and a switching processor (90) (i.e. *a first processor card*). The switching processor's call completion process is illustrated in figure 4. The switching processor (90), first receives an incoming call request (202), and thus, inherently contains *a protocol unit residing thereon*.

Furthermore, the receiving switching processor (90) hunts for trunk within the receiving trunk subgroup (206) (i.e. *a first request unit residing on the first processor card*). The

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computerized instructions executed by the processor represent *a first request object*.

Also, the trunk unit (80) in immediate communication with the switching processor contains interfaces to a plurality of trunks. Each interface represents a network interface card, and the circuitry thereon represents *a first action unit*. Upon execution of step 226, the switching processor commands the selected interface to execute a call (i.e. *for executing the received management request in response to an instruction from the first request object*). Therefore, Agarwal anticipates all limitations of the claim.

Claim 3 is limited to *the management system of claim 1*, as covered by Agarwal. As indicated above in the rejection of claim 1, the trunk unit (90) includes a plurality of interfaces for each individual trunk, including *a second network interface card*. The circuitry thereon comprises *a second action unit*. The second interface acts identically to the first in response to selection (212) by the switching processor. The hunting process (206) relies on the trunk availability bitmap shown in figure 5 (i.e. *a second resource broker for receiving utilization information on the first and second network interface cards from the first and second action units*). The hunt selects the first available trunk (i.e. *and is operable to select, in dependence upon the utilization information, one of the action units to which to send the instruction*). Therefore, Agarwal anticipates all limitations of the claim.

Claim 4 is limited to *a management system for a telecommunications switch*. Agarwal teaches an arrangement for local trunk hunting in a distributed switching system. Figure 1 depicts a block diagram indicating the connectivity of the main modules of the distributed switching system. The trunk units act as *a plurality of*

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network interface cards and the switching, communication, and administration module act as *processor cards*. Figure 4 indicates the overall steps taking by the switching system of Agarwal in finding an available trunk for routing a network request. The communication module (36) receives a trunk hunt request (230) from one of the switching modules in the event of an incoming trunk-request (202). Thus, the communication module (36) inherently contains a *protocol unit*, also making the communication module *the first processor card*. Following step 230, the communication module selects (234) an available switching module (44, 46, 48, 50) and forwards the trunk request to that switch (238). In conclusion of the request, the switching processor sets up the trunk unit and the call (258). Because each switching module is CPU based, they are *processor cards*. Arbitrarily, any one of the switching modules can be considered the *second processor card*. The CPU of the second processor card will inherently create a thread of instructions (258) (i.e. *creating a first request object*) after receiving the forwarded trunk request (238) (i.e. *in response to the received management request*). Furthermore, each switching module includes a trunk unit that is responsible for a plurality of trunks, therefore, each trunk unit is comprised of a plurality of *network interface cards*. The network interface cards are set up by the switching modules (258), and thus, inherently *execute the received management request in response to an execute instruction from the first request object*. Therefore, Agarwal anticipates all limitations of the claim.

Claim 5 is limited to *the management system of claim 4*, as covered by Agarwal. As depicted in figure 1, the switching system disclosed by Agarwal includes a plurality of

switching modules (44, 46, 48, 50) (i.e. *a second request unit residing on a third processor card for creating a second request object in response to the received management request*). In addition, the trunk select method disclosed by Agarwal, as depicted in figure 4, includes the step (234) where the communications module selects a forwarding switching module based on that module's load status, wherein the load status of each processor is located in a map, depicted in figure 6 (i.e. *a first resource broker*). The details of step 234 are disclosed in column 7, lines 25-37). Therefore, Agarwal anticipates all limitations of the claim.

Claim 6 is limited to *the management system of claim 5*, as covered by Agarwal. Each switching module is responsible for multiple trunks of a trunk subgroup, each trunk unit interfaces to each trunk individually, therefore, Agarwal includes a plurality of network interface cards (i.e. *a second action unit residing on a second network interface card for executing the received management request in response to an execute instruction from the request object to a selected request unit*). After receiving a forwarded trunk-request from the communication module (238), a switching module will hunt for an available trunk (242). Step 242 is detailed in column 7, lines 44-60). The trunk status bitmap shown in figure 5 corresponds to *a second resource broker* that contains information on each trunk's status (i.e. *information on utilization of the first and second network interface cards from the first and second action units*). The selected switching module uses figure 5 to select an available trunk (i.e. *operable to select, in dependence upon the network interface card utilization information, one of the action*

units to which to send the execute instruction). Therefore, Agarwal anticipates all limitations of the claim.

Claim 8 is limited to *the management system of claim 6*, as covered by Agarwal. Each trunk unit contains a plurality of trunk interfaces; each of those interfaces being responsible for providing the physical connection and timing of their respective trunk (column 4, lines 31-44). The physical hardware, which is responsive to the commands of the switching module's CPU (i.e. *create action object instruction*), comprises an *action object factory*. The electrical signals generated by the hardware comprise *action objects*. Clearly, the trunks then comprise *managed objects*, and the signals conveyed upon them are in direct response to the signals generated by the interface hardware. Therefore, Agarwal anticipates all limitations of the claim.

Claim 9 is limited to *the management system of claim 6*, as covered by Agarwal. Each switching module depicted in figure 1 (44, 46, 48, 50) includes a switching processor or CPU (84, 86, 88, 90). The CPU receives a trunk request from the communication module (238), therefore, each CPU includes a *request object server in communication with the protocol unit*. The instructions executed upon reception of the forwarded request represent a thread (i.e. *a first request object*), the function of these instructions is depicted in step 258, and include the set up of a trunk interface (i.e. *in communication with a selected action unit*). Part of the process includes hunting for an available trunk, which is assisted by a trunk availability bitmap (figure 5) (i.e. *a resource model in communication with the first request object for storing information on attributes of the telecommunications switch*). Clearly, the CPU creates the instruction thread upon

request (i.e. *wherein the request object server is operable to create the first request object in response to a create request objection instruction from the protocol unit*) and the bitmap instructs the CPU which trunk interface to operate (i.e. *and the request object is operable to instruct the selected action unit to create the action object in dependence upon the information stored in the resource model*). Therefore, Agarwal anticipates all limitations of the claim.

Claim 11 is limited to a *method of operating a management system for a telecommunications switch*. Agarwal discloses an arrangement for local trunk hunting in a distributed switching system (Abstract). The switching system is illustrated in figure 1. It includes a communications module (i.e. *a protocol unit*) a plurality of switching modules and processor (i.e. *a plurality of request units...*) and a plurality of trunk units (i.e. *and action units*). The trunk hunting method is illustrated in figure 4. First, a request to select a trunk is received (202) from an external switch or station (14, 16, 18) (i.e. *receiving a management request from a request source*). Next, an available switching module is selected (234, 238) (i.e. *selecting a request unit in dependence upon information non utilization of the request units*). Upon receiving a forwarded request in step 238, the selected switching unit's processor will execute instructions (i.e. *create a request object in the selected request unit in response to an instruction from the protocol unit*). Those instructions include selecting an available trunk (242) based on a trunk availability bitmap, seen in figure 5 (i.e. *selecting an action unit in dependence upon information on utilization of the action units*). The selected trunk's interface will generate signals for timing and interface purposes (i.e. *create an action*

object in the selected action unit in response to an instruction from the request unit).

Completing the call (258) requires the interface to then provide all the call features necessary for two-way communication to the selected trunk (i.e. *executing, by the action object, the management request on a managed object of the telecommunications switch*). Therefore, Agarwal anticipates all limitations of the claim.

Claim 10 is limited to a method, the method is to be applied in the same environment as the method of claim 11, and furthermore, includes all the steps of claim 11. Therefore, claim 10 is rejected for the same reasons as claim 11.

Claim 12 is limited to *the method of claim 11*, as covered by Agarwal. Step 234 indicates the selection process made by the communication unit in deciding which switching module is available. That process relies on information supplied from a trunk group bitmap (figure 6) (i.e. *wherein the protocol unit includes a first resource broker*). Agarwal discloses that the bitmap is updated based on the idle count vs. load status (246, 250, 254) (i.e. *the step of updating the first resource broker with information on utilization of the selected request unit*). Therefore, Agarwal anticipates all limitations of the claim.

Claim 13 is limited to *the method of claim 12*, as covered by Agarwal. Step 242 comprises hunting for a trunk from a trunk subgroup. Shown in figure 5 is a trunk availability bitmap. This bitmap adds in the trunk hunting process performed by the switching processor (i.e. *wherein the selected request unit includes a second resource broker*). Following step 242 is step 246, wherein the selected trunk's status is updated locally at the switching processor (column 7, lines 61-65) (i.e. *the step of updating the*

second resource broker with information on utilization of the selected action unit).

Therefore, Agarwal anticipates all limitations of the claim.

Claim 14 is limited to *the method of claim 13*, as covered by Agarwal. The entire trunk selection process is performed so that an incoming telephone request may be completed. Therefore, step 258, wherein the trunk is set up also includes the step of completing a telephone call. Telephone calls are two-way communication, and thus, inherently *send a result of execution of the management request to the request source*. Therefore, Agarwal anticipates all limitations of the claim.

2. Claims 1 and 2 are rejected under 35 U.S.C. 102(b) as being anticipated by Greenstein et al. (US Patent 5,784,617).

Claim 1 is limited to *a management system for a telecommunications switch*. Greenstein discloses a resource-capability-based method and system for handling service processor requests. While the apparatus and methods disclosed by Greenstein are not indicated to be in the realm of telecommunications switches, the apparatus and their functions anticipate the limitations herein. Thus, the limitation of *a management system for a telecommunications switch* is an intended use of the apparatus and holds no patentable weight. Figure 3A depicts the network structure. There are a plurality of processors (300, 302, 304) (i.e. *a first processor card*), each of which is connected to the LAN by way of a LAN bus adapter (LBA) (318, 322, 328) (i.e. *a first network interface card*). Each processor includes a central processing complex (CPC). Figures 4A and 4B depict the request processing routine. Step 402 begins by receiving a

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request by the operating system (i.e. *a protocol unit residing on the first processor card for receiving a management request*) within the CPC. The logic within the CPC that responds to this request is *a first request unit*. The computerized instructions executed by the logic represent *a first request object created in response to the received management request*. Furthermore, each LBA acts as a translator between the CPC and the LAN (column 5, lines 24-38) and inherently includes circuitry (i.e. *a first action unit residing on the first network interface card*). Processing requests executed by each CPC require communication with LAN devices, and thus, each CPC communicates to those devices by way of their respective LBA (i.e. *for executing the received management request in response to an instruction from the first request object*).

Therefore, Greenstein anticipates all limitations of the claim.

Claim 2 is limited to *the management system of claim 1*, as covered by Greenstein. Greenstein discloses at least a second processor (302) (i.e. *a second processor card*). This processor also includes a CPC (i.e. *a second request unit residing on the second processor card*). Clearly, this CPC operates identically to the one described in the rejection of claim 1 (i.e. *for creating a second request object in response to the received management request*). In addition, each CPC includes instructions that are depicted in figures 4A and 4B. Clearly, the steps are directed toward resource management (i.e. *wherein the protocol unit includes a first resource broker*). Upon receiving a service request (402), the resources of the CPC are monitored (i.e. *for receiving utilization information on the first processor card*). Figure 5 provides steps for determining whether or not another CPC is handling a request (508)

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(i.e. *information on the second processor card*). Furthermore, after analyzing this usage data, the CPC determines if it or another CPC should handle the request (407, 420, 512) (i.e. *from the first and second request units and is operable to select, in dependence upon the utilization information, one of the request units to which to send the received management request*). Therefore, Greenstein anticipates all limitations of the claim.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

3. Claims 7 and 15 are rejected under 35 U.S.C. 103(a) as being unpatentable over Agarwal in view of Androski et al. (US Patent 6,041,117).

Claim 7 is limited to *the management system of claim 6*, as covered by Agarwal. Agarwal discloses a distributed processing system, wherein each switching module (44, 46, 48, 50) is capable of receiving call requests from a communication module (36). However, the system of Agarwal has no indication as to the type of call requests coming in, or how they are interpreted by the receiving switching processors. Therefore, Agarwal anticipates all limitations of the claim with the exception of *a protocol converter in communication with the protocol agent, the first resource broker, and the selected request unit*.

Androski teaches a distributed network control and fabric application interface (Abstract). One of the key features of the Androski reference is that received telecommunications requests are translated into generic commands before being distributed to the switching systems therein (Abstract, lines 15-18) (*i.e. operable to convert the received management request into a generic switch resource access format*). The advantage being greater flexibility and cost-effective use of application software (Abstract, lines 18-27). By combining Androski and Agarwal would result in incoming requests to the communication module being translated into generic requests. Those generic requests would be forwarded to a switching module upon determination by the communication module, with the aid of the bitmap seen in figure 6, which switch is available (*i.e. and dispatch the converted management request to the selected request unit in response to a dispatch instruction from the first resource broker*). It would have been obvious to one of ordinary skill in the art at the time of the invention to incorporate the request translation step as taught by Androski for the benefits indicated above.

Claim 15 is limited to *the method of claim 14*, as covered by Agarwal. As indicated in the rejection of claim 7, Agarwal does not disclose request format conversion. However, Androski makes up for this deficiency. In addition, after the protocol conversion, it is inherent that the switching processors must execute the call using the same protocol of the request (*i.e. and the step of sending a result further comprises the step of converting the format of the result from the management system*

format to the request source format). Therefore, Agarwal in view of Androski makes obvious all limitations of the claim.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Walter F Briney III whose telephone number is 703-305-0347. The examiner can normally be reached on M-F 8am - 4:30pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Forester W Isen can be reached on 703-305-4386. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

WFB
9/17/04


XU MEI
PRIMARY EXAMINER